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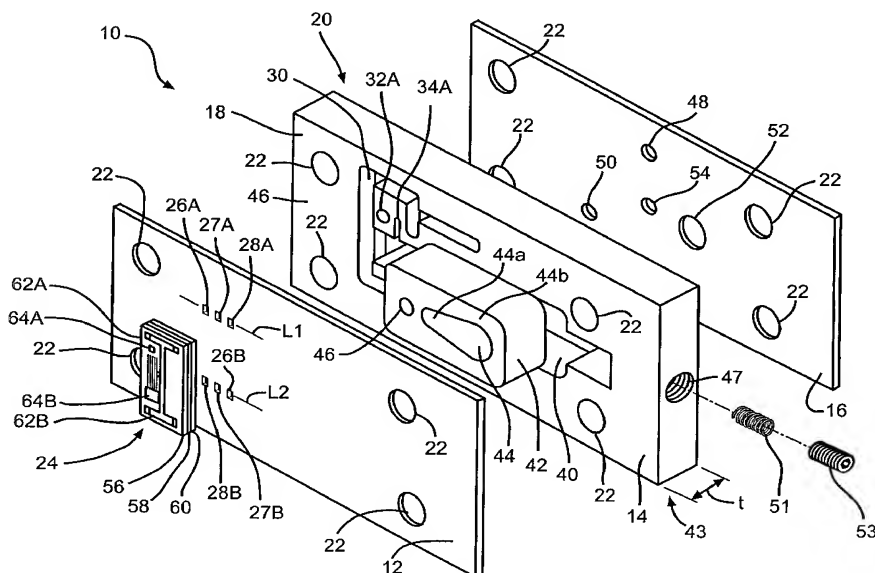
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(54) Title: HYBRID MICRO/MACRO PLATE VALVE



(57) Abstract: A microvalve device includes a microvalve pilot valve and a pilot operated valve. The microvalve pilot valve includes a first layer, a third layer having a plurality of openings formed therethrough, and a second layer positioned between the first and third layer. The second layer includes a chamber in fluid communication with the openings, and includes a movable member for selectively controlling fluid flow through the chamber and between the openings. The pilot operated valve includes a first plate, a third plate, and a second plate positioned between the first plate and the third plate. The first plate includes a plurality of ports in fluid communication with the openings of the microvalve, a pressure apply channel, and a pressure release channel. The second plate includes

the pressure apply channel and the pressure release channel, both of the channels being in fluid communication with a spool portion of the pilot operated valve. The spool portion is selectively movable to allow flow from a second source of fluid to a load. The third plate includes a first source port in fluid communication with a first fluid source, the pressure apply channel, one of the first plate ports, and one of the microvalve openings. A first reservoir port of the third plate ports, and one of the microvalve openings. A first reservoir port of the third plate is in fluid communication with a first reservoir, the pressure release channel, one of the first plate ports, and one of the microvalve openings. A second source port of the third plate is in fluid communication with the second source of fluid. A load port of the third plate is in fluid communication with the load.



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